

variant or truncated variant mimics or cross-reacts with a B-cell or T-cell epitope of *Lawsonia* spp. OmpH Polypeptide.

A2
2. (Amended) The isolated or recombinant immunogenic polypeptide of claim 1 wherein said polypeptide elicits the production of antibodies against *Lawsonia* spp. when administered to an avian or porcine animal.

3. (Amended) The isolated or recombinant immunogenic polypeptide of claim 1 which confers a protective immune response against *Lawsonia* spp. when administered to an avian or porcine animal.

4. (Amended) The isolated or recombinant immunogenic polypeptide of claim 1 wherein the *Lawsonia* spp. is *L. intracellularis*.

6. (Amended) An isolated or recombinant immunogenic polypeptide comprising:

(i) a peptide, oligopeptide or polypeptide comprising an amino acid sequence which has at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1; or

(ii) a homologue or derivative of (i) which mimics a B-cell or T-cell epitope of a *Lawsonia* spp. OmpH polypeptide.

7. (Amended) The isolated or recombinant immunogenic polypeptide of claim 6 wherein said polypeptide elicits the production of antibodies against *Lawsonia* spp. in a porcine or avian animal.

8. (Amended) The isolated or recombinant immunogenic polypeptide of claim 6 wherein said polypeptide confers a protective immune response against *Lawsonia* spp. in a porcine or avian animal.

10. (Amended) The isolated or recombinant immunogenic polypeptide of claim 8, wherein said protective immune response is induced in a porcine animal.

A4
11. (Amended) The isolated or recombinant immunogenic polypeptide of claim 6 wherein the *Lawsonia* spp. is *L. intracellularis*.

13. (Amended) The isolated or recombinant immunogenic polypeptide of claim 6 comprising the amino acid sequence set forth in SEQ ID NO: 1 or the amino acid sequence encoded by the OmpH-encoding nucleotide sequence of pALK13 (ATCC 207196).

AS- 14. (Amended) The isolated or recombinant immunogenic polypeptide of claim 13 consisting essentially of the amino acid sequence of SEQ ID NO: 1 or the amino acid sequence encoded by the OmpH-encoding nucleotide sequence of pALK13 (ATCC 207196).

AG 17. (Amended) A vaccine composition for the prophylaxis or treatment of infection of an animal by *Lawsonia* spp., said vaccine composition comprising an immunogenic component comprising an isolated or recombinant polypeptide having at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1 or an immunogenic homologue, or derivative thereof which is immunologically cross-reactive with *Lawsonia intracellularis*; and one or more carriers, diluents or adjuvants suitable for veterinary or pharmaceutical use.

19. (Amended) The vaccine composition according to claim 16 wherein the isolated or recombinant polypeptide comprises the amino acid sequence set forth in SEQ ID NO: 1 or the amino acid sequence encoded by the OmpH-encoding nucleotide sequence of pALK13 (ATCC 207196).

20. (Amended) The vaccine composition of claim 19, wherein the isolated or recombinant polypeptide consists essentially of the amino acid sequence of SEQ ID NO: 1.

21. (Amended) A combination vaccine composition for the prophylaxis or treatment of the infection of an animal by *Lawsonia* spp., said vaccine composition comprising:

(i) a first immunogenic component comprising an isolated or recombinant polypeptide having at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1 or an immunogenic homologue or derivative thereof which is immunologically cross-reactive with *Lawsonia intracellularis*;

(ii) a second immunogenic component comprising an antigenic *L. intracellularis* peptide, polypeptide or protein; and

(iii) one or more carriers, diluents or adjuvants suitable for veterinary or pharmaceutical use.

22. (Amended) A vaccine vector comprising a polynucleotide that encodes the immunogenic polypeptide of SEQ ID NO: 1, a homologue or a variant thereof operably linked to a promoter.

A 7
23. (Amended) The vaccine vector of claim 22 wherein the polynucleotide comprises SEQ ID NO: 2 a homologue, or derivative thereof which has at least about 70% sequence identity thereto.

A 8
25. (Amended) A polyclonal or monoclonal antibody molecule that binds specifically to an OmpH polypeptide or a derivative of an OmpH polypeptide from *Lawsonia* spp. wherein said derivative has at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1.

27. (Amended) A method of diagnosing the infection of a porcine or avian animal by *Lawsonia intracellularis* or a microorganism that is immunologically cross-reactive thereto, said method comprising the steps of: contacting a biological sample derived from said animal with the antibody molecule of claim 25 for a time and under conditions sufficient for an antigen:antibody complex to form, and detecting said complex formation.

28. (Amended) The method of claim 27 wherein the biological sample is selected from the group consisting of serum, lymph nodes, ileum, caecum, small intestine, large intestine, faeces or a rectal swab derived from a porcine animal.

29. (Amended) A method of identifying a previous or current infection with *Lawsonia intracellularis* or a microorganism that is immunologically cross-reactive thereto, said method comprising:

contacting blood or serum from said animal with the immunogenic polypeptide of claim 1 for a time and under conditions sufficient for an antigen: antibody complex to form; and detecting said complex formation.

30. (Amended) An isolated polynucleotide encoding a peptide, oligopeptide or polypeptide selected from the group consisting of:

(i) a peptide, oligopeptide or polypeptide which comprises an amino acid sequence which has at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1; and

(iii) a homologue or derivative of (i) which mimics a B-cell or T-cell epitope of or confers immunity against a *Lawsonia* spp when injected into an animal.

31. (Amended) The isolated polynucleotide of claim 30, wherein the peptide, oligopeptide or polypeptide comprises the amino acid sequence set forth in SEQ ID NO: 1 or the